

Counting Collections

Reporting Category Number and Number Sense

Topic Counting and skip counting

Materials

- Clear jars
- 100 small objects for counting
- Chart paper (optional)
- Counting cups

Vocabulary

count, backward, forward, skip count

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Gather students on the floor in a circle, and place a clear jar containing up to 100 objects in the middle of the circle. Ask students to estimate how many objects are in the jar. Record their estimates on the chart paper or on the board.
2. After all students have had a chance to estimate, ask how we can find out exactly how many objects are in the jar. (by counting) Dump the contents of the jar onto the floor, and have students start counting orally with you by ones. When you finish counting, check the estimates, and discuss their accuracy.
3. Point out how long it took to count by ones, and ask if anyone has an idea of how you could count the objects faster. If nobody suggests skip counting, ask questions to lead students to this suggestion. Ask students what skip counting is, and discuss all the ways you can skip count (by twos, threes, fours, fives, etc.).
4. Ask students which would be the fastest method of counting: counting by twos, fives, or tens. After they have given their answers and justified their reasoning, tell them they are going to test skip counting all three ways to see which is the fastest.
5. Ask approximately one-third of the students to come to the middle of the circle and group the objects into groups of two. Once all the objects have been grouped, begin to lead the class in counting them again by ones. Some students should stop you and question your counting by ones, but if there are no objections, prompt them by saying, "Am I counting correctly?" Ask them how the objects can be counted faster. When they suggest counting by twos, ask why. After they justify their answer, begin counting the objects by twos.
6. Repeat step 5, using another one-third of the students to group the objects into groups of five. Ask how they should be counted this time and to explain why. When students have justified their answers, lead them in counting the groups by fives.

7. Once again, repeat step 5, using the last one-third of the class to form groups of ten. When students have explained why they will be counting by tens, lead them in counting by tens.
8. Ask students which way of counting was the fastest and to explain why.
9. Have each group of students assemble a jar of 30 objects, using skip counting. When each group is satisfied there are 30 objects in their jar, ask each group to share their strategy for counting the objects. Then, select one jar to demonstrate counting backward. Begin by removing one object from the jar and asking students, "We had 30 objects in the jar, and we have taken one out. How many objects are left in the jar?" Continue by passing the jar around the circle and having students remove one object at a time while counting backward from 30 until the jar is empty.

Assessment

- **Questions**
 - "Why is it helpful to use skip counting when counting large numbers of objects? Can you give an example of when skip counting may help you?"
 - "Which is faster, counting by ones, twos, fives, or tens? Why?"
- **Journal/Writing Prompts**
 - "You need to count out 100 marbles and put them in a bag. In order to count them as fast as possible, would you count them by ones, twos, fives, or tens? Explain why, and draw a picture to show what the marbles would look like if you decide to put them into groups."
 - "Write your numbers from 10 to 100 by tens. Then, write them from 5 to 100 by fives. Finally, write them from 2 to 100 by twos. Which way took you the longest time? Explain why."
- **Other**
 - Give each student 50 objects to group by twos and then again by tens. Ask what happens to the size of the groups when you change from counting by twos to counting by tens.
 - Use a hundred chart to help students practice skip counting. Have students color in a hundred chart as you count together so they can see the patterns that form. This can be modeled using a large hundred chart, and charts may be displayed in the classroom as a reference for students.

Extensions and Connections (for all students)

- Provide many different manipulatives in your math center for students to use when practicing counting by ones, twos, fives, and tens. You might also provide counting cups to help students group their manipulatives.
- Read stories or nursery rhymes that focus on skip counting or counting backward. After reading and discussing the stories, place them in your math center for students to enjoy.
- Have students use a manipulative (e.g., plastic bears) to make six groups of three. Ask how many bears there are all together. Have students practice counting by threes to 18, using the manipulatives.

Strategies for Differentiation

- Have students use counting cups to help them keep track of the groups of objects they are counting.
- Have students place 30 objects on a hundred chart and count backward by removing one object at a time. Different numbers of objects could be used to make the activity more accessible or challenging.